| Course Code: | 20ESGE101 |
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| Course Name: | ENGINEERING GRAPHICS |

# Special Curves

| S.No | Questions |
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| 1. | The distance between the moving point and the fixed line is 3/2 times the distance between the moving point and fixed point. The fixed point is located at a distance of 50 mm from the fixed line. Identify the curve traced by the moving point and construct the same. Also, draw tangent and normal at a point which is 30mm from the fixed point. |
| 2. | Draw the conic section when the distance of the fixed point from the fixed line is 50mm and the eccentricity is 2/3. Also, Draw tangent and normal at any point on the curve. |
| 3. | Identify & construct the conic curve when the distance between the focus and Directrix is 45 mm and eccentricity is 5/4. Also Draw the tangent and normal at any point on the curve. |
| 4. | The Distance between the focus and Directrix is 60 mm. Trace the path of a point which moves in such a way that its distance from the focus is equal to its distance from the Directrix. Also, draw tangent and normal at any point the curve. |
| 5. | Construct a hyperbola, given the distance of the focus from the Directrix is 55mm and the eccentricity is 1.5. Also Draw the tangent and normal at any point on the curve. |
| 6. | A roller of 40 mm diameter rolls over a horizontal table without slipping for one complete revolution. Draw the path traced by the point P on the circumference of the circle. Also draw a tangent and normal at any point on the curve. |
| 7. | The distance between the fixed point and fixed line is 50mm. The distance between the moving point and fixed line is 2/3 times the distance between the moving point and fixed point. Identify the curve and draw tangent, normal at any point on the curve. |
| 8. | The fixed point of a conic curve is 40mm away from the fixed straight line. The distance between the fixed point and moving point is 4/5 times the distance between the fixed line and moving point. Identify the curve, draw tangent and normal at any point on the curve. |
| 9. | Construct a cycloid, given the radius of the rolling circle is 30 mm. Also draw a tangent and normal at any point on the cycloid. |
| 10. | A coin of 50mm diameter rolls over a horizontal table without slipping. A point on the circumference of the coin is in contact with the table surface in the beginning and after one complete revolution. Draw the path traced by the point. Also, draw a tangent and normal at any point on the curve. |

# Projections of Straight Line

| S.No | Questions |
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| 1. | A line AB 75 mm long is inclined at an angle of 30° to HP and 45° to VP. The point A is 20 mm above HP and 25 mm in front of VP. Draw the projections of the straight line. |
| 2. | One end A of a line AB, 75 mm long is 20 mm above HP and 25 mm in front of VP. The line is inclined at 30° to HP and the top view makes 45° VP. Draw the projection of the line and find the true inclinations with the vertical plane. |
| 3. | A line PQ has its end P 20 mm above the HP and 25 mm in front of VP. The other end Q is 45 mm above the HP and 55 mm in front of the VP. The distance between the end projectors is 60 mm. Draw the projections of the line. Also, find the true length and true inclinations of the line with respect to HP and VP. |
| 4. | A line EF 65 mm long has its end E 25 mm above the HP and 15 mm in front of the VP. The line is inclined at 35° to the HP and 55° to the VP. Draw its projections. |
| 5. | The mid-point of a straight line AB is 60 mm above HP and 50 mm in front of VP the line measures 80 mm long and inclined at 30° HP and 45° to VP. Draw its projections. |
| 6. | A line AB 75 mm long has its end A in both HP and VP. The line is inclined at 30° to VP and 45° to HP. Draw its projections. |
| 7. | A line PQ has its end P in the HP and 40 mm in front of the VP. Its front view is inclined at angle of 50° to the XY line and has a length of 70 mm. The other end Q is in the VP. Draw its projections. |
| 8. | The distance between the end projectors passing through the end points of the line AB is 60 mm. The end A is 15 mm above the HP and 10 mm in front of the VP. The end B is 35 mm in front of the VP. The line AB appears 70 mm long in the front view. Complete the projections. Determine the true length of the line and its inclinations with respect to HP and VP. |
| 9. | The midpoint of a line AB 80 mm long is 30 mm above the HP and 45 mm in front of the VP. It is inclined at 30° to the HP and 60° to VP. Draw the projections. |
| 10. | A line PQ measures 80 mm in length. The end P is 10 mm above the HP and 20 mm in front of the VP. Its top view and front view measures 66 mm and 70 mm respectively. Draw the projections of the line and determine its inclinations with the HP and VP. |